Data Communications Lab Project

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1 Different Line Coding Techniques

1. Not Return To Zero Level (NRZ-L)
2. Not Return To Zero Invert (NRZ-I)
3. Manchester
4. Differential Manchester
5. Alternate Mark Inversion (AMI) and Pseudoternary
6. Scrambling (B8ZS & HDB3)

2 References:

IDE used: DEV C++
Programming Language: C++
Standard Library: Open-GL
Header File: glut.h

3 Implementation of all above line coding techniques.

To implement these techniques in C++ we require **open-GL**

Open Graphics Library (OpenGL) is a cross-language, cross-platform application programming interface (API) for rendering 2D and 3D vector graphics. The API is typically used to interact with a graphics processing unit (GPU), to achieve hardware-accelerated rendering.

Functions we used in the project:-

1. glClearColor(r,g,b,0.0): This function is used to set the background color of the open-GL window.
2. glMatrixMode (GL_PROJECTION): This function is used to plot projected type geometry figures.
3. gluOrtho2D (0.0, 200.0, 0.0, 150.0): Used to create 2D plane and set coordinates of open-GL window.
4. glPushMatrix(): It is used to push and pop the current matrix.
5. glLoadIdentity():It replaces the current matrix with the identity matrix.
6. glPushAttrib(GL_DEPTH_TEST):It is used to push and pop the server attribute stack.
7. glDisable(GL_DEPTH_TEST):Its used to enable or disable server-side GL capabilities.
8. glRasterPos2i(x,y): Its specifies the raster position for pixel operations.
9. glutBitmapCharacter(GLUT_BITMAP_9_BY_15, String[i]): It is used to write text in open-GL window.
10. glPopAttrib(): It is used to pop pushed attribute to the window.

11. glColor3f(0.0, 0.0, 0.0): It is used to set the color of lines,points,text etc etc using value of R,G,B.
12. glLineStipple(1,0xAAA0): It specifies the line stipple pattern.
13. glEnable(GL_LINE_STIPPLE): It enables us to draw a dashed line.
14. glBegin(GL_LINES): It tells us that line drawing begins from here.
15. glVertex2i(x,y): It provides coordinates of vertex of the line.
16. glEnd():It tells line drawings ends here.
17. glLineWidth(1.0): It is used to set the width of the line.
18. glPointSize(5.0):It is used to set the diameter of the point.
19. glBegin(GL_POINTS): It tells us that point drawing begins from here.
20. glutInit(&argc,argv):It is used to initialize the GLUT Library.
21. glutInitDisplayMode (GLUT_SINGLE — GLUT_RGB):It sets the initial display mode.
22. glutInitWindowSize (500, 400): It defines the size of open-GL window.
23. glutInitWindowPosition (400, 100): It sets the initial position of open-GL window.
24. glutCreateWindow (String): It is used to create open-GL window with window name string.
25. glutDisplayFunc(display): it is used to display graph contents on the window.
26. glutMainLoop(): It returns the graph contents to the main function.

We tried our best to complete the project.
THANK YOU!